



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

May 13, 1994

Deborah Carlson, RPM  
U.S. Department of the Navy  
Northern Division  
Naval Facilities Engineering Command  
10 Industrial Highway  
Code 1823, Mail Stop 82  
Lester, PA 19113-2090

RE: EPA Review of Draft Phase II Remedial Investigation Report  
Volume I, Old Fire Fighting Training Area, Naval Education  
and Training Center (NETC), Newport, Rhode Island.

Dear Ms. Carlson:

Attached you will find EPA's comments on the above-referenced document, listed as specific comments and numbered for future reference.

As a general comment, the Navy should revise the draft RI report to include a comparison of the analytical results from the sampling efforts and the analytes detected from the background locations.

If there are any questions regarding the attached comments, please feel free to call me at 617/573-9614.

Sincerely,

A handwritten signature in cursive script, appearing to read "Andrew F. Miniuks".

Andrew F. Miniuks, Remedial Project Manager  
Federal Facilities Superfund Section

Attachment

cc: Paul Kulpa, RI DEM/DSR  
Brad Wheeler, NETC  
Mary Pothier, CDM-FPC



## Attachment

### Draft Phase II Remedial Investigation Report Volume I - Old Fire Fighting Training Area

#### General Comments:

1. Many discrepancies were noted between the text, the tables, and the figures. The figures do not correspond with the values stated in the text or provided in the tables. Specific discrepancies include Figure 3-10, in which an ignored measurement point (at MW-75) may cause a substantial change in the groundwater contour map. In Section 4.0, numerous discrepancies were noted between the text and the information provided in the tables. These discrepancies seem to indicate that a thorough review of the text and corresponding tables was not performed prior to submitting the report for review.

Revise the figures, text, and/or tables to ensure that the data presented is accurate and consistent.

2. The report, as originally submitted, did not include a human health risk assessment or an ecological risk assessment. Therefore, the report was incomplete.
3. There are numerous comparisons of site data to NOAA and other historical Narragansett Bay study sites; however, little attention is paid to the site-specific references.

Revise the text to include these references and discussions.

4. The Navy has not substantiated the claim that the polynuclear aromatic hydrocarbons (PAHs) detected at the site are from atmospheric deposition, sewage influent, CSO discharges, and/or urban runoff. If the Navy believes that these are the sources of the PAHs rather than activities which have historically taken place at the site, then revise the text to provide additional data to justify this proposed position.
5. Given the compositing of the near and off-shore sampling, the nature and extent of contamination is still not delineated. As has previously discussed, EPA rejected the compositing of these samples during the review of the workplans.

Revise the text to include a discussion of the Navy's sampling approach.

6. Conduct toxicity tests on sediments along a gradient of sediment concentrations found at the site. Ensure that this is conducted in a manner that allows for some determination of the site-specific bioaccumulation potentials along with the information provided in Appendix O on bivalves.

Revise the text to include the proposed technical approach.

7. The bioaccumulation potential and effects for the constituents of concern must be assessed for higher trophic levels including avian and mammalian species as appropriate.

Revise the text accordingly.

8. The benthic macroinvertebrate study conducted by Menzie Cura and Associates does not appear to include the collection and identification of macroinvertebrates. Further use of the off-shore results must be viewed in this light when determining impacts and/or risks to the ecological community during the risk assessment process. In addition, provide information on the relative pollution tolerances of benthic macroinvertebrates found during this study in the risk assessment.

9. As noted in the report, polychlorinated biphenols (PCBs) were detected at the site. If PCB-contaminated oils or fuels were burned during the operations of the site, then dioxins or furans may have been produced during combustion reactions. Therefore, the Navy should revise the text to include the results of the sampling and analysis of soils and groundwater for presence and concentrations of dioxin or furans.

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#### **Specific Comments:**

10. Section 1.3.1 - Site Location and Description, Page 1-12

The soil mounds are reported in the text to be 6 feet (ft) and 15 ft high; Figure 1-4 shows them as 16 ft and 30 ft high.

Verify and correct these measurements, if necessary.

11. Section 1.3.3 - Previous Site Investigation, Page 1-13

Figure 1-6 and Plate A-1 do not show the location of the soil gas or geophysical surveys. The findings and results of the geophysical survey are not discussed as indicated in the text.

Add the locations to the figures and revise the text accordingly. Include the conclusions of the geophysical survey.

The soil assessment results are discussed in terms of "northern area", "central area," etc. which are not well defined.

Add the locations to Figure 1-6, or create a table which relates surface soil, boring, and monitoring well locations to each area.

12. Section 2.2.1 Seismic Refraction Survey, Page 2-2

A seismic refraction survey does not provide information on the thickness of the refracting horizon, only its depth.

Modify text accordingly.

Hager-Richter's report indicates a 12-pound hammer striking a steel base plate was used as a seismic source in addition to an accelerated weight drop.

Modify the text accordingly.

13. Section 2.2.2 Electromagnetic Conductivity Survey, Page 2-5

Under "EM-31 Survey Results", survey results are broadly discussed and generally interpreted as being negative; however, the data results are not provided in the report.

Revise the report to include the results in the appendices.

Confirm if any contouring was done with the data. If contouring was done, include this figure within the report.

14. Section 2.2.3 Magnetometer Survey, Page 2-6

Under this section, the survey results are broadly discussed and generally interpreted as being negative; however, the data results are not provided in the report.

Revise the report to include the results in the appendices.

Confirm if any contouring was done with the data. If contouring was done, include this figure within the report.

15. Section 2.4 Surface Soil Investigation, Page 2-10

Surface soil sample SS-7 is not shown on Figure 2-5. Add this location to the figure.

16. Section 2.6.2 Field Measurements and Observations, Page 2-20

The text states the lowest dissolved oxygen reading was 1.81 mg/l; Table 2-6 indicates the lowest value is 1.57 mg/l.

Resolve this discrepancy.

17. Section 3.3.6 Site Ground Water Hydrogeology, Page 3-21

Vertical Hydraulic Gradients - If the water level measurements gathered from MW-11S/R have a negative gradient due solely to the tidal effects, then explain why a similar effect has not been observed in MW-25/D, also located directly on the shore.

Provide the rationale for the statement "at periods other than low tide, a positive, upward hydraulic gradient is present..."

Horizontal Hydraulic Gradients - Horizontal gradients calculated using the groundwater contour maps shown in Figure 3-10 and 3-11 will not be accurate due to following:

- the figure incorrectly shows the groundwater elevation measured at MW-2S as belonging to MW-2D;
- the report omits the groundwater level measured for MW-7S during the construction of the contour map. The value measured in MW-7S is the highest groundwater level on the site. This would indicate some type of groundwater mounding, which would greatly affect the groundwater flow direction on the site.

Revise the text and/or figures accordingly.

18. On page 3-19 of the text, add a reference in the text (under the discussion of the slug test results) to the information in Table 3-2.

19. On page 3-22 of the text, provide an explanation as to how hydraulic conductivity values of 33.84 ft/day for the overburden and 1.695 ft/day for the bedrock were determined. The text states that these are "median" values, implying some sort of averaging has taken place. However, a review of Table 3-2 shows that 33.84 ft/day is the value obtained for MW-7S, while 1.695 ft/day is the value obtained for MW-11R. Although there may be good reasons for selecting these values, revise the text to include the selection process.

20. Section 4.1 Soil Assessment, Page 4-3

The text states that in order to evaluate the analytical soil data, contaminant comparison levels were established for the total volatile and semivolatile organic compounds. Revise the text to identify these contaminant comparison levels are and whether or not they are risk-based. These contaminant comparison levels must be developed on an individual compound basis, rather than based on a total compound basis.

In addition, revise the text to clearly present a comparison of the contaminant concentrations to the background values for each analyte.

21. Section 4.1.1 Volatile Organic Compounds (VOCs), Page 4-4

Surface Soils - Revise the text of this section and the entire report to delete the phrase "presence of very low levels"... of several VOCs and replace with the actual range of values detected.

22. Information from Appendix L shows that in addition to the VOCs mentioned in the text as being detected, trichloroethene (1 J ppb) and 1,2-dichloroethene (cis/trans) (17 ppb) were detected in FF-B141-121393.

Revise the text to include these detections.

23. Subsurface Soils - There appear to have been 24, not 23 subsurface soil samples collected during the Phase II RI. If correct, the revise the text accordingly.

24. Page 4-5 - The text states that in order to evaluate the analytical soil data, contaminant comparison levels were established for the total volatile and semivolatile organic compounds. Revise the text to identify what these contaminant comparison levels are and whether or not they are risk-based. These contaminant comparison levels must be developed on an individual compound basis, rather than based on a total compound basis.

In addition, revise the text to clearly present a comparison of the contaminant concentrations to the background values for each analyte.

Instead of stating "...based upon their detected elevated concentration...", state the actual concentrations.

25. Page 4-5 - A review of the data table revealed one instance of chloroethane being detected, but no incidents of chloroform being detected. Check and revise text. Chloroethane does not appear to have been found in any of the associated trip or field blanks.
26. Page 4-5 - Revise the text: "...indicating that there appears to be some real concentrations of these VOCs in the subsurface soil samples." As currently written, it does not make sense.
27. Page 4-5 - As previously mentioned, the use of the VOC contaminant comparison level is unclear. The discussions on this page would be improved by including a figure showing the locations of each of the sampling positions and the total VOCs detected at each point.
28. 4.1.2 Semivolatile Organic Compounds (SVOCs), Page 4-8  
  
Subsurface Soils - According to Appendix J-2, there were 22 subsurface soil samples collected during the Phase II RI, not 21.
29. 4.2 Ground Water Assessment and 4.2.2 Semivolatile Organic Compounds (SVOCs), Page 4-18  
  
As previously mentioned, revise the text to delete the reference to "low level concentrations of SVOCs," and replace with the actual range of values detected.
30. 4.2.4 Inorganic Compounds, Page 4-20  
  
According to Table 4-12, zinc was also detected in MW-25 at levels exceeding federal secondary maximum contaminant levels (SMCLs).  
  
Revise the text accordingly.
31. Page 4-29 - Add Phase II analytical summary tables for the five filtered groundwater samples to Appendix L.
32. Page 4-21 - According to Table L4.D, potassium was also detected in each Phase II RI groundwater sample.

Revise the text accordingly.

33. Page 4-21 - According to Table 4-13, arsenic was also detected above federal maximum contaminant levels (MCLs) in Phase II data, and zinc was detected above federal SMCLs.

Revise the text accordingly.

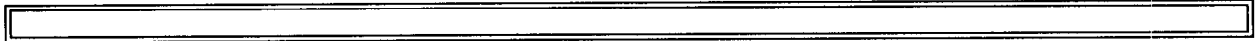
34. Section 5.1 Summary, Page 5-4

Ground Water - Arsenic was also detected above federal MCLs in Phase II data.

Revise the text accordingly.

35. Page 5-4 - By summarizing the results of analytes above the MCL for only four wells (MW-6R, MW-5S, MW-9R and MW-11S), the text implies that MCLs were not exceeded in other wells. However, analytes exceeded their associated MCLs in MW-2S, MW-2D, MW-3S, MW-4S, MW-7S and MW-10S as well.

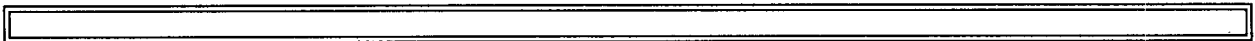
Either remove the abbreviated summary, indicate that it is partial, or summarize the analytical results for all of the wells.



#### **Tables**

36. Revise the tables to include a comparison between the analytical results from the sampling locations for each media and the background samples.
37. Table 3-2 - No explanation is provided in the text as to what is meant by "pneumatic" with respect to the second slug test on MW-6R, nor does the data appear to have been used, at least with respect to computing the highest and lowest hydraulic conductivity values observed. In addition, information on this test is not provided in Appendices H and/or I.

Revise the text to remove the reference to this test from the table, or provide an explanation in the text.



## Figures

### 38. Figure 3-10 - Ground Water Contour Map, 01/04/94

As currently presented, the figure incorrectly shows the groundwater elevation measurements at MW-2S as belonging to MW-2D. The value measured in MW-7S is the highest groundwater level on the site and would indicate some type of groundwater mounding, which would greatly affect the groundwater flow direction on the site. Verify the elevations and revise accordingly.

Provide the rationale for omitting the groundwater elevation measurements for MW-7S during the construction of the contour map.

### 39. Figure 3-11 - Ground Water Contour Map, 02/22/94

Assuming "NM" stands for "not measured", the text should state why the groundwater level was not measured in MW-7S during the second round. Since the value was anomalous during the first round, it would be helpful to know what the value was during the second measuring event.

In addition, with regard to both Figure 3-10 and 3-11, provide the rationale for contouring the shallow well and bedrock well water depths together on the same map.

Water depths measured on the two days show a curious relationship. Wells located west of a line striking northeast through the Child Care Center (MW-2S, MW-3S, MW-4S, MW-9R, MW-10S, and MW-11S) had higher values on 01/04/94 than those measured on 02/22/94. The opposite relationship appears to be true for wells located east of the line (MW-1S, MW-5S, MW-6S and MW-8R). The relationship does not appear to be strictly tidal, as the dividing line does not parallel the shore. For example, for MW-1S (located east of the dividing line, but on the shore), between 01/04/94 and 02/22/94, the water level rose 0.52 ft from 4.80 to 5.32 ft, while for MW-10S (located west of the dividing line, but on the shore), the water level dropped 0.48 ft from 3.90 to 3.42 ft.

Revise the text to describe whether or not there was a time lapse in measuring the wells, allowing the tide to affect areas differently. Describe whether or not the wells were measured in the same order on both days.

A better groundwater contour map might be constructed by averaging the values from the two different days, attempting to minimize this affect and/or tidal affects.

Revise the text accordingly.

40. Figure 4-1 - Surface Soil Semivolatile Organic Results

The box labeled "SS-6" is mislabeled, and should be labeled "SS-22". In addition, the values for total SVOCs, total PAHs and total carcinogenic PAHs are also given for SS-6; they should be listed for SS-22.

In addition, the text in Section 4.1.2 states SS-6 is not to be considered with the other surface soil samples.

Revise the text accordingly.

41. Results for BI5I are omitted from the figure. Total SVOCs at this location are 4130 ppb; total PAHs are 4087 ppb, and total carcinogenic PAHs are 1837 ppb.

Revise this figure to include this information.

The duplicate collected at M91 (M93) has higher total PAHs, total carcinogenic PAHs and total SVOC values.

Provide the rationale for not including these values on the figure.

42. Figure 4-2 - Subsurface Soil SVOC's Results Map

The box labeled "B-5(12-14')" does not exist in the data tables provided in Appendix K. The values reported in the box appear to belong to "M03-2", which is missing from the figure.

Verify, and if correct, revise accordingly.

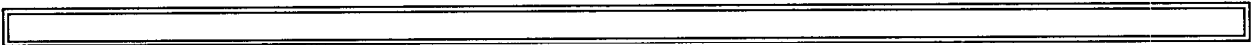
43. According to Appendix K, values entered in the box for "B-7 (6-8')" are incorrect. Total PAHs should read 12870, and total carcinogenic PAHs should read 3030.

Verify, and if correct, revise accordingly.

44. Only 34 out of 43 subsurface sample values are plotted on the figure and no test pit samples are plotted on this figure. Since the text states that test pit values are considered subsurface values, revise the figure to include the test pit results must be added to the figure.
45. Figure 4-3 - Ground Water Contaminants Exceeding Federal MCLs and State of Rhode Island Groundwater Quality Standards

Revise the figure to address the following errors:

- a) for MW-6R, beryllium should read 2.6 ppb, not 9.3 ppb. Also, the box points toward the wrong well.
- b) for MW-9R, arsenic should be added to the list, at 130 ppb.
- c) for MW-11S, nickel should read 121 ppb, not 181 ppb.
- d) for MW-11S, lead should read 1120 ppb, not 57.7 ppb.



## Appendices

### 46. Appendix H

The initial "depth to water below top of riser" is either given as 20 ft or assumed to be 20 ft, as determined by looking at the "Residual Drawdown". This is anomalous, since only three of the wells tested are screened more than 20 ft.

If the 20 ft is an arbitrary value chosen by the Navy, then this fact should be clearly stated.

Verify and if correct, revise accordingly.

### 47. Appendix I

Falling head tests are not valid if conducted in wells where the water table intersects the well screen. Of the two falling head tests, this may have been true for MW-7S, for which the water table on 01/04/94 is reported as being at an elevation of 6.48 ft (mlw), while the top of the screen is reported as being at 7.91 ft (mlw). The actual falling head test took place 01/07/94; water elevation information for that particular date could not be found. If this well is screened across the water table, the data are not valid.

Rising head tests in wells screened across the water table have three stages, each with its own characteristic response curve on a log head vs. time plot:

- 1) initial water will flow into the well due to sand pack drainage;
- 2) subsequent flow into the well from the formation, which is the portion of the response curve that should be interpreted; and
- 3) as the water level in the well rises to the height of the water table, pressure and other residual effects will again alter the flow of water.

If present, this residual "tail" response should not be used in determining hydraulic conductivity.

These three stages are very apparent on many of the slug test plots given in Appendix I; however, the correct portion of the curve has not always been used in the analysis. This may lead to an incorrect calculation of the formation conductivities, which in turn will affect the calculation of the flow rate through the aquifer. The following portions of the curves must be analyzed to determine hydraulic conductivities:

MW-2D, Test 1	1-6.5 minutes
MW-7S, Test 1	0.1-0.4 minutes
MW-8R, Test 1	0.02 - 0.2 minutes
MW-11R, Test 1	1-3.4 minutes

Revise the text accordingly.

Variations from the Phase I  
Remedial Investigation Workplan

The following page numbers refer to the Final Report, Phase II RI/FS Work Plan.

48. Vol. III-2, Page 13 - Both the text and Figure 9 show a test pit was planned for the western portion of the site.

Revise the text of the draft RI report to provide a clear explanation for why it was not completed.

49. Vol. III-2, page 15 - The text states a total of 10 wells were to be installed; Figure 10 shows both a shallow and bedrock well were to be installed at MW-9. On page 2-17 of the draft RI report, the text states that only nine wells have been installed, and Figure 2-8 does not show a shallow well having been installed at MW-9.

Revise the text of the report to include an explanation for not installing this well.